SEQUENCE LISTING

<110> University Catholique de Louvain

<120> Identification of nucleotide sequences specific for mycobacterial and
pseudomonas species, development of differential diagnosis strategies for
mycobacterial and pseudomonas species

<130> UCL-021-US

<150> US 60/269,848

<151> 2001-02-21

<150> US 60/292,509

<151> 2001-05-23

<150> EP 01870030.2

<151> 2001-02-19

<160> 89

<170> PatentIn version 3.1

<210> 1
<211> 20
<212> DNA
<213> Mycobacterium sp.

<400> 1
gagtaggtca tggctcctcc   20

<210> 2
<211> 20
<212> DNA
<213> Mycobacterium sp.

<400> 2
catgcagcga attagaacgt   20

<210> 3

<211> 20

<212> DNA

<213> Mycobacterium sp.

<400> 3

catgcagcga attagaacgt   20

<210> 4

<211> 18

<212> DNA

<213> Mycobacterium sp.

<400> 4

aacttgacga actcgccg   18

<210> 5
<211> 18
<212> DNA
<213> Mycobacterium sp.

<400> 5

aggtattcgc gcagcatg   18

<210> 6
<211> 18
<212> DNA
<213> Mycobacterium sp.

<400> 6

gtasgtcatr rstyctcc   18

<210> 7
<211> 18
<212> DNA
<213> Mycobacterium sp.

<400> 7

ggtgaacatt gggccgaa   18

<210> 8
<211> 21
<212> DNA
<213> Mycobacterium avium

<400> 8

cggtcgtctc cgaagcccgc g   21

<210> 9
<211> 20
<212> DNA
<213> Mycobacterium gastri

<400> 9

gatcggcagc ggtgccgggg   20

<210> 10
<211> 19
<212> DNA
<213> Mycobacterium gastri

<400> 10

gtatcgcggg cggcaaggt   19

<210> 11
<211> 24
<212> DNA
<213> Mycobacterium gastri

<400> 11
tctgccgatc ggcagcggtg ccgg   24

<210> 12
<211> 24
<212> DNA
<213> Mycobacterium gastri

<400> 12
gccggggccg gtattcgcgg gcgg   24

<210> 13
<211> 22
<212> DNA

<213>   Mycobacterium gordonae

<400>   13
gacgggcact agttgtcaga gg   22

<210>   14
<211>   21
<212>   DNA
<213>   Mycobacterium intracellulare

<400>   14
gggccgccgg gggcctcgcc g   21

<210>   15
<211>   21
<212>   DNA
<213>   Mycobacterium intracellulare

<400>   15
gcctcgccgc ccaagacagt g   21

<210>   16
<211>   22
<212>   DNA
<213>   Mycobacterium leprae

<400>   16
gatttcggcg tccatcggtg gt   22

<210>   17
<211>   21
<212>   DNA
<213>   Mycobacterium kansasii

<400>   17
gatcgtcggc agtggtgacg g   21

<210>   18
<211>   17
<212>   DNA
<213>   Mycobacterium kansasii

<400>   18
tcgtcggcag tggtgac   17

```
<210>  19
<211>  27
<212>  DNA
<213>  Mycobacterium kansasii

<400>  19
atccgccgat cgtcggcagt ggtgacg                                    27



<210>  20
<211>  21
<212>  DNA
<213>  Mycobacterium malmoense

<400>  20
gacccacaac actggtcggc g                                          21



<210>  21
<211>  21
<212>  DNA
<213>  Mycobacterium marinum

<400>  21
cggaggtgat ggcgctggtc g                                          21



<210>  22
<211>  20
<212>  DNA
<213>  Mycobacterium scrofulaceum

<400>  22
cggcggcacg gatcggcgtc                                            20



<210>  23
<211>  20
<212>  DNA
<213>  Mycobacterium simiae

<400>  23
atcgctcctg gtcgcgccta                                            20



<210>  24
<211>  21
<212>  DNA
<213>  Mycobacterium szulgai

<400>  24
cccggcgcga ccagcagaac g                                          21
```

<210> 25
<211> 22
<212> DNA
<213> Mycobacterium tuberculosis

<400> 25
gccgtccagt cgttaatgtc gc   22

<210> 26
<211> 22
<212> DNA
<213> Mycobacterium xenopi

<400> 26
cggtagaagc tgcgatgaca cg   22

<210> 27
<211> 21
<212> DNA
<213> Mycobacterium avium

<400> 27
gcgcggtcgt ctccgaagcc c   21

<210> 28
<211> 28
<212> DNA
<213> Mycobacterium avium

<400> 28
ccgctcggca ctaaaaggca gtggaagc   28

<210> 29
<211> 21
<212> DNA
<213> Mycobacterium avium

<400> 29
gaagcccgcg ggcaagccaa t   21

<210> 30
<211> 18
<212> DNA
<213> Mycobacterium gastri

<400> 30
gatcggcagc ggtgccgg   18

<210> 31
<211> 18
<212> DNA
<213> Mycobacterium gastri

<400> 31
gcggtgccgg ggccggta   18

<210> 32
<211> 21
<212> DNA
<213> Mycobacterium gastri

<400> 32
cggtatcgcg ggcggcaagg t   21

<210> 33
<211> 27
<212> DNA
<213> Mycobacterium gordonae

<400> 33
ggcgacgggc actagttgtc agaggtg   27

<210> 34
<211> 16
<212> DNA
<213> Mycobacterium intracellulare

<400> 34
ccgccggggg cctcgc   16

<210> 35
<211> 21
<212> DNA
<213> Mycobacterium intracellulare

<400> 35
tcgccgccca agacagtggc g   21

<210> 36

<211> 23
<212> DNA
<213> Mycobacterium kansasii

<400> 36
atccgccgat cgtcggcagt ggt   23

<210> 37
<211> 23
<212> DNA
<213> Mycobacterium kansasii

<400> 37
gatcgtcggc agtggtgacg ggg   23

<210> 38
<211> 21
<212> DNA
<213> Mycobacterium kansasii

<400> 38
gggccggtat cacgggggca a   21

<210> 39
<211> 24
<212> DNA
<213> Mycobacterium leprae

<400> 39
gatttcggcg tccatcggtg gtag   24

<210> 40
<211> 32
<212> DNA
<213> Mycobacterium malmoense

<400> 40
aacgcaagat ctcgaaggtg ttttcaaagg cg   32

<210> 41
<211> 23
<212> DNA
<213> Mycobacterium malmoense

<400> 41
gacccacaac actggtcggc gcc   23

```
<210>  42
<211>  19
<212>  DNA
<213>  Mycobacterium marinum

<400>  42
gccaatcggc tcggcggga                                          19



<210>  43
<211>  22
<212>  DNA
<213>  Mycobacterium marinum

<400>  43
atcgacggag gtgatggcgc tg                                      22



<210>  44
<211>  21
<212>  DNA
<213>  Mycobacterium simiae

<400>  44
cgatcgctcc tggtcgcgcc t                                       21



<210>  45
<211>  19
<212>  DNA
<213>  Mycobacterium simiae

<400>  45
ccggcgcacc cgctcgaac                                          19



<210>  46
<211>  21
<212>  DNA
<213>  Mycobacterium szulgai

<400>  46
ctgcgatgag caagcggccc g                                       21



<210>  47
<211>  16
<212>  DNA
<213>  Mycobacterium szulgai
```

<400> 47
gcggcccggt cggccg   16

<210> 48
<211> 24
<212> DNA
<213> Mycobacterium tuberculosis

<400> 48
cggccgtcca gtcgttaatg tcgc   24

<210> 49
<211> 25
<212> DNA
<213> Mycobacterium xenopi

<400> 49
cggtagaagc tgcgatgaca cgcca   25

<210> 50
<211> 15
<212> DNA
<213> Mycobacterium avium

<400> 50
gcaagccaat ggcga   15

<210> 51
<211> 14
<212> DNA
<213> Mycobacterium intracellulare

<400> 51
ctcgccgccc aaga   14

<210> 52
<211> 19
<212> DNA
<213> Mycobacterium tuberculosis

<400> 52
ccgtccagtc gttaatgtc   19

<210> 53
<211> 17

<212> DNA
<213> Mycobacterium simiae

<400> 53
acgatcgctc ctggtcg   17

<210> 54
<211> 22
<212> DNA
<213> Mycobacterium malmoense

<400> 54
aagatctcga aggtgttttc aa   22

<210> 55
<211> 19
<212> DNA
<213> Mycobacterium avium subspecies paratuberculosis

<400> 55
ggtcgcgtca ttcagaatc   19

<210> 56
<211> 19
<212> DNA
<213> Mycobacterium avium subspecies paratuberculosis

<400> 56
tctcagacag tggcaggtg   19

<210> 57
<211> 216
<212> DNA
<213> Mycobacterium intracellulare

<400> 57
gttctacctg tgctgagcaa gctccggtga taccgaccgt ctcgccggag ggccgccggg   60

ggcctcgccg cccaagacag tggcggcgcc accggttccc gcacgtgcgc tagcgtgggt   120

gatcgaccgc gtcgcaatgc ggtgacgcgc ctgcaagcac agcgtcgcat cgccaccgcg   180

gcgcccgctc ggcacttaaa ggcactggta gcaaca   216

<210> 58
<211> 881
<212> DNA

<213> Mycobacterium avium

<400> 58

```
tcgtagctgg cttcctcgtc ggtccacagc gcccgcatcg cttccaggta ttcgcgcagc      60

atggtgcggc gccggcccgc cggcacgccg tggtcggcga gttcgtcggt gttccagccg     120

aacccgacgc cgaggctgac ccggccgccg gacagatggt caagggtggc aatactttc     180

gccagcgtga tcgggtcgtg ttcgaccggc agggccaccg cggtggacag ccgcacccgc     240

gaggtgacgg cacaggccgc gcccagactg acccacgggt ccagggtgcg catgtagcgg     300

tcgtcgggca gcgacgcgtc gccggtggtc gggtgcgcgg cctcccgctt gatcgggata     360

tgcgtgtgtt ccggcacgta gaaggtcgca aacccgtggt cgtcggcaag cttcgcggcc     420

gcagccggag agatgccacg gtcgctggtg aaaagcacaa gcccgtaatc catgcagtga     480

attagaacgt gttctacctc tgcggggcaa gctgtcgtga tacggaccgt ctcgccgcgc     540

ggtcgtctcc gaagcccgcg ggcaagccaa tggcgacggc accggccgtc gcacgtgcgc     600

tagcgtgggt gatcgaccgt gtcgctcgcg cagtgacgcg cctgcaagca ccgcgtcgca     660

tcgcaaccgt ggcgcccgct cggcactaaa aggcagtgga agcaacagga ggagccatga     720

cctactctcc cggcagcccc ggatatccac cggcgcagtc tggcggcacc tatgcaggcg     780

ccacaccatc tttcgccaaa gacgacgacg gcaagagcaa actcccgctc tacctcaaca     840

tcgccgtggt cgccctgggt ttcgcggcct acctgctgaa t                        881
```

<210> 59
<211> 642
<212> DNA
<213> Mycobacterium gastri

<400> 59

```
gtgcgccggc gccccggcgg cacgccatgg tcggcgagtt cgtgcgcccg gcggcacgcc      60

atggtcggcg agttcgtcgg tgttccagcc gaatccgacg ccgacgctga cccggccccc     120

ggatagtggt ccagcgtggc aatgcttttg gccagcgtga tcgggtcatg ctccaccgca     180

gcgcaaccgc ggttgacagc ctgactcggg aggtgaccgc tgaagccgca cccaagctca     240

cccacgggtc cagggtgcgc atatagcggt cgtccggcag cgacgcgtca cccgtcgtgg     300

gatgggcggc ttcccgtttg accgggatat gcgtgtgttc gggcacgtag agagtgcgaa     360

agccatggtc gtcggccagt ttcgcggctg ccgccgggga gatcccacgg tcgctggtga     420

aaaggacaag cccgtaatcc atgaacagaa ttagaacgtg ttctacctcc gccgggcaag     480
```

```
cggctcatct gccgatcggc agcggtgccg gggccggtat cgcgggcggc aaggtcgcca        540

cggcgtgagt acccggccgt gcgctagcgt gggtcatcga attgtgtcgc agggagcaat        600

cgtcgcattg cagcaggcgt agcgacggca ccggaggtaa ca                          642



<210>   60
<211>   745
<212>   DNA
<213>   Mycobacterium gordonae

<400>   60
gtgcgacgac ggccggccag cacgttatgg tcggcgagct cgtcggtgtt ccagccgaac         60

ccgacgccga ggctaactcg cccgccggac aggtgatcca gcgtggcgat gcttttcgcc        120

aaggtgatcg ggtcatgctc gaccggcaac gcgactgccg tcgacagccg cacccgcgac        180

gtcacagcac acgccgcgcc caggctcacc cagggatcca gggtgcgcat ataacggtcg        240

tcgggcagcg tctcgtctcc ggtggtggga tgagccgcct cgcgtttgat cgggatatgc        300

gtgtgttcgg gtacgtagaa ggtgtgaaaa ccatgtgtgt cggcaagttt cgctgctgcc        360

gcaggggaaa taccgcgatc gctggtgaac agaacgaggc tgtagtccat gccccaattt        420

agaacgtgtt ctacttttgg ccgcagccga ccccctgcgg cgacgggcac tagttgtcag        480

aggtgcgcta gcgtggttga tcgaatgcgt cgcaggccgt accgcgtcgt gccgaagcag        540

aggggccgtg acggcaccgg aagcaacagg aggacttatg acctacccgc cggtagtcc         600

cggatatcca tccgcccagc agtcggccgg caactacggc agctccgctc cgccgccgg         660

ccagtccgag ccgggtgaaa gcaagctggg actgtacctg gccatcgcgg tggcggccct        720

gggcctactg gcgtacctct tcagc                                             745



<210>   61
<211>   785
<212>   DNA
<213>   Mycobacterium kansasii

<400>   61
gtgcgccggc gcgccggcgg cacgccatgg tcagcgagtt cgtcggtgtt ccagccgaat         60

ccgacgccga cgctgacccg ccccccggat aggtggtcca gcgtggcaat gcttttggcc        120

agcgtgatcg ggtcatgctc gaccggcaac gcaaccgctg ttgacagtcg acccggaag         180

gtgaccgctg aagccgcgcc caaactcacc cacgggtcca gcgtgcgcat atagcggtcg        240

tccggcagcg acgcgtcacc cgtcgtggga tggcggcctc ccgtttgacc gggatgtgcg        300
```

```
tgtgttcggg cacgtagaaa gtgcgaaagc catggtcgtc ggccagtttc gcggctgccg      360

cgggagaaat gccacggtcg ctggtgaaaa ggacaagccc gtaatccatg aacagaatta      420

gaacgtgttc tacctcagcc gggcaagcgg ctcatccgcc gatcgtcggc agtggtgacg      480

gggccggtat cacggggca aggtcgccac ggcgcgagta ccaggccgtg cgctagcgtg      540

ggtcatcgaa tcgtgtcgca gggagcaatc gtcgcattgc agcaggcgta gcgacggcac      600

tggaggtaac aggaggagcc atgacctact caccaggtag tcccggatat ccgcccgcgc      660

aatcggccgg ctcctacgga gccgccacac cgtctttcgc caaggccgac gacggtgtca      720

gcaagcttcc gatgtacctg agcatggcgg ttgccgcgct cgggctgctg gcgtatctgg      780

ccagc                                                                  785


<210>   62
<211>   691
<212>   DNA
<213>   Mycobacterium malmoense

<400>   62
tcgtaggccg cttcctcctg ggtccacagc gcccgcattg cctcgatgta ttcacgcagc       60

atggtgcgac ggcgcccggc cggcacgccg tggtcggcga gctcgtcggt gttccagcca      120

aacccaacgc cgaggctgac ccggccgccg acaggtggt ccaaggtggc aatacttttc      180

gccagcgtga tcgggtcgtg ctcgacgggc agcgccaccg cggtagacag ccgcacccgc      240

gacgtcacgg cgcacgccgc gcccaggctc acccacgggt ctagcgtgcg catatagcgg      300

tcgtccggca agcgacgcgc cacccgtcgt cggatgggcc gcctcgcgct tgaccgggat      360

atgggtgtgt tccggcacgt agaacgtctg gaagccgtgg tcgtcggcaa gtttggcggc      420

tgccgccggg gagatgccgc ggtcgctggt gaaaagtaca agcccgtaat ccatggacag      480

aattagaacg tgttctaccg gcggtgggca agccgctgcg ccgccgagga tctcgactcg      540

gacccacaac actggtcggc gccgggcgcg ccgacaggtc ggtcggcccg gcacgggcgg      600

ccgaacgtgc gctagcgtgg gtgatcgatc gcgtcgcaac gcaagatctc atgcggcgtc      660

gctgagggtc ttgaaggcac tggaagcaat a                                     691


<210>   63
<211>   698
<212>   DNA
<213>   Mycobacterium simiae
```

<400> 63

```
tcgtattggg cttcttcctg cgtccacagc gcccgcatgg cttccaggta ctcgcgcagc      60

atggtccgcc ggcgcgccgg cggcacgttg tggtcggcca gttcgtcggt gttccaaccg     120

aacccgacgc ccacactgac ccgtccgccg gacagatggt ccagggtggc gatgctttc      180

gccagcgtga tcgggtcgtg ctcgacgggc agcgcgaccg cggtggacag tcgcacccgc     240

gaggtgaccg cgcacgccgc gcccagactg acccacgggt ccagcgtgcg catgtagcgg     300

tcgtcgggca gcgattcgtc gcccgtcgtg ggatgggccg cctcgcgctt gatcgggatg     360

tgagtgtgtt ctggcacgta gaacgttgtg aagccatggt cgtcggcgag tttggccgcg     420

gccgccgggg cgatgccccg atcactggtg aaaagcacga gcccgtaatc catgcacaga     480

attagaacgt gttctacctc tgtggagcaa gcggcccccg ctacgtcgac ccgcagacgg     540

gccgctgaga cgatcgctcc tggtcgcgcc taggggccgg tcgctcccgc gcacccgctc     600

gaacgtgcgc tagcgtggtt gatcggtcgc gcgtaacgca aacgcgggca agcagtgacg     660

tcgcgcccga cgaggtcttg aaggcactgg aagcaaca                            698
```

<210> 64
<211> 712
<212> DNA
<213> Mycobacterium szulgai

<400> 64

```
gtgcggcggc gcccggccgg gacgccgtga tcagcgagct cgtcggtatt ccagccgaag      60

ccgacgccga ggctgacccg gctgccggac agatgatcca gcgtggcaat gcttttggcc     120

agcgtgatcg gatcatgctc gaccggcagc gccaccgcgg tggacaaccg gacccgagac     180

gtcaccgcgg ccgcagcacc caaactcacc cacgggtcca gcgtgcgcat gtagcggtca     240

tcgggcagcg acgcgtcact cgtagtggga tgggcagcct cccgcttgat cgggatgtgg     300

gtgtgttcag gcacgtagaa cgtctgaaaa ccgtggtcgt cggccagctt tgcggccgcc     360

gccggggcaa tgccgcgatc gctggtgaaa agtacaagcc cgtaatccat gcaccgaatt     420

agaacgtgtt ctacctgcga tgagcaagcg cccggtcgg ccgacgagca ggtcggcccg      480

gcgcgaccag cagaacgtgc gctagcgtgg ttgatcgagt cgcgcaccgg aaagcaaccg     540

gaagtaatca ggaggagcca tgacctactc gaccggcagc cccggatatc gcctgcgca      600

gcagcccggg gggtcgtacg gcggcgccac tcctggtgac gctcagagca agcttccgct     660

gtacctcagc atggcggtgg ccgccctcgg cctggccgcg tatctcgcca gc            712
```

<210> 65
<211> 802
<212> DNA
<213> Mycobacterium tuberculosis

<400> 65

```
tcatagcagg cctcctcttg ggtccacaac gcccgcatcg cctcgaggta ttcgcgcagc      60

atggtgcggc ggcgtccggg tggcacacca tgatcgacga gctcgtcggt gttccagccg     120

aacccgaccc cgacgctgac ccggccgtgc gacaaatgat ccagcgtcgc aatgcttttc     180

gccagcgtga tcggatcatg ctcgaccggc agcgccaccg cggtggcaag ccggatccgc     240

gacgtcaccg ccgatgctgc tcccaggctc acccacgggt ccaacgtgcg catatagcgg     300

tcgtccggca gcgaagcgtc acccgtcgtc ggatgggccg cctggcgctt gaccgggatg     360

tgggtgtgtt cgggcacgta aaacgtgcga aacccgtggc tttcagcaag tctggcggcc     420

gcggccgggg tgatgccgcg gtcgctggtg aacagcacaa gtccgtagtg catgcaccga     480

attagaacgt gttccacctg cgccgggcaa gcggccgtcc agtcgttaat gtcgcgagcg     540

ccggtcgctc cggcagcggc acccgaacgt gcgctagcgt ggttgatcga atcgcgtcgc     600

cgggagcaca gcgtcgcact gcaccagtgg aggagccatg acctactcgc cgggtaaccc     660

cggatacccg caagcgcagc ccgcaggctc ctacggaggc gtcacaccct cgttcgccca     720

cgccgatgag ggtgcgagca agctaccgat gtacctgaac atcgcggtgg cagtgctcgg     780

cctggctgcg tacttcgcca gc                                             802
```

<210> 66
<211> 628
<212> DNA
<213> Mycobacterium bovis

<400> 66

```
tcatagcagg cctcctcttg ggtccacaac gcccgcatcg cctcgaggta ttcgcgcagc      60

atggtgcggc ggcgtccggg tggcacacca tgatcgacga gctcgtcggt gttccagccg     120

aacccgaccc cgacgctgac ccggccgtgc gacaaatgat ccagcgtcgc aatgcttttc     180

gccagcgtga tcggatcatg ctcgaccggc agcgccaccg cggtggcaag ccggatccgc     240

gacgtcaccg ccgatgctgc tcccaggctc acccacgggt ccaacgtgcg catatagcgg     300

tcgtccggca gcgaagcgtc acccgccgtc ggatgggccg cctggcgctt gaccgggatg     360
```

```
tgggtgtgtt cgggcacgta aaacgtgcga aacccgtggc tttcagcaag tctggcggcc      420

gcggccgggg tgatgccgcg gtcgctggtg aacagcacaa gtccgtagtg catgcaccga      480

attagaacgt gttccacctg cgccgggcaa gcggccgtcc agtcgttaat gtcgcgagcg      540

ccggtcgctc cggcagcggc acccgaacgt gcgctagcgt ggttgatcga atcgcgtcgc      600

cgggagcaca gcgtcgcact gcaccagt                                        628



<210>  67
<211>  400
<212>  DNA
<213>  Mycobacterium xenopi

<400>  67
gttcacccac cgcgagcaag cggcgccggt agaagctgcg atgacacgcc agtcgccgcg       60

agacccccgc cgccaggtgc gctagcgtgg atggtcgaat cgcgtcgcaa cgcctgccct      120

gacaagtcac ggcgttaatg gagcggtcca cgcagcgtcg cgcggaagcg gcgccctggg      180

gatacagcgt cgcaacacag tggcgcccca acggcactga tgcacaggag aagccatgac      240

gtactcgccc ggtagccccg gatatccacc cgcgcagtcc cccggttcct acggcggctc      300

cccacagtcg ttcgccaaat ccgatgacgg cgccagcaag ctgcagctgt atctgaccgt      360

cgcggtggtg gcgctcggcc tggcggccta cctggcgagt                            400



<210>  68
<211>  707
<212>  DNA
<213>  Mycobacterium paratuberculosis

<400>  68
tcgtagctgg cttcctcgtc ggtccacagc gcccgcatcg cttccaggta ttcgcgcagc       60

atggtgcggc gccggcccgc cggcacgccg tggtcggcga gttcgtcggt gttccagccg      120

aacccgacgc cgaggctgac ccggccgccg gacagatggt caagggtggc aatactttc      180

gccagcgtga tcgggtcgtg ttcgaccggc agggccaccg cggtggacag ccgcacccgc      240

gaggtgacgg cacaggccgc gcccagactg acccacgggt ccagggtgcg catgtagcgg      300

tcgtcgggca gcgacgcgtc gccggtggtc gggtgcgcgg cctcccgctt gatcgggata      360

tgcgtgtgtt ccggcacgta gaaggtcgca aacccgtggt cgtcggcaag cttcgcggcc      420

gcagccggag agatgccacg gtcgctggtg aaaagcacaa gcccgtaatc catgcagtga      480

attagaacgt gttctacctc tgcggggcaa gctgtcgtga tacggaccgt ctcgccgcgc      540
```

ggtcgtctgc gaagcccgcg ggcaagccaa tggcgacggc accggccgtc gcacgtgcgc   600

tagcgtgggt gatcgaccgt gtcgctcgcg cagtgacgcg cctgcaagca ccgcgtcgca   660

tcgcaaccgt ggcgcccgct cggcactaaa aggcagtgga agcaaca   707

<210> 69
<211> 686
<212> DNA
<213> Mycobacterium marinum

<400> 69
tcgtaggcgg cttcctcctg cgtccacagt cgcccgcatc gcctcgaggt attcacgcaa   60

catcgtgcgg cgccgtccgg gtggaacgcc atggtcggcg agttcgtcgg tgttccaacc   120

gaaccccacg ccgaggctga cccgtccgcc ggacagatga tccagcgtgg caatgctctt   180

ggccagggtg atcgggtcat gctcgacggg cagcgccacc gcagtcgaca gccgtacccg   240

cgaggtcacc gccgatgccg cgcccaaact cacccagggg tccagcgtgc gcatataacg   300

atcgtcggga agcgaggaat cgcccgtcgt tggatgagcg gcttctcgct tgattgggat   360

atgggtgtgc tcaggcacgt agaaggtgtg aaagccgtgg tcgtcagcga gtctcgccgc   420

cgccgccgga gcgatgccgc ggtcgctggt gaaaagcaca agcccatagt ccataacaga   480

attagaacgt gttctacctc ggccgggcaa gcgcccccg cgccaatcgg ctcggcggga   540

tcgacggagg tgatggcgct ggtcgagcgg gggcaggtcg ccgcggcgcg agcaccggaa   600

cgtgcgctag cgtggttgtt cgaatcgcgt cgcagggacc aagcgtcgca atgcagcagc   660

ggcgccgcga cggcgcgcaa gtaaca   686

<210> 70
<211> 685
<212> DNA
<213> Mycobacterium ulcerans

<400> 70
tcgtaggcgg cttcctcctg cgtccacagc gcccgcatcg cctcgaggta ttcacgcaac   60

atcgtgcggc gccgtccggg tggaacgcca tggtcggcga gttcgtcggt gttccaaccg   120

aaccccacgc cgaggctgac ccgtccgccg gacagatgat ccagcgtggc aatgctcttg   180

gccagggtga tcgggtcatg ctcgacgggc agcgccaccg cagtcgacag ccgtacccgc   240

gaggtcaccg ccgatgccgc gcccaaactc acccaggggt ccagcgtgcg catataacga   300

```
tcgtcgggaa gcgaggaatc gcccgtcgtt ggatgagcgg cttctcgctt gattgggata    360

tgggtgtgct caggcacata gaaggtgtga aagccgtggt cgtcagcgag tctcgccgcc    420

gccgccggag cgatgccgcg gtcgctggtg aaaagcacaa gcccatagtc cataacagaa    480

ttagaacgtg ttctacctcg gccgggcaag cgccccccgc gccaatcggc ttggcgggat    540

cgacggaggt gatggcgctg gtcgagcggg ggcaggtcgc cgcggcgcga gcaccggaac    600

gtgcgctagc gtggttgttc gaatcgcgtc gcagggacca agcgtcgcaa tgcagcagcg    660

gcgccgcgac ggcgcgcaag taaca                                          685



<210>  71
<211>  729
<212>  DNA
<213>  Mycobacterium leprae

<400>  71
tcatataacg gcttcattct tgtgtccata atgcctgcat tgcttcgagg cattcgtaca     60

ccatggtgcg cgccgcccg datggcacat cgtgatcggt gagctcgttg gtcttccaac    120

cgaacccgac gccgaagttc actcactcgc cggacaaatt atccaggttg acaatacttt    180

tcgcaagtgt gattgggtca tgttagacgg gcagcgccac caccatgaac agtcgtagcc    240

tgccgatata acccgcatgt cgcgcccaaa cttacccatg agtcataggt acgcatcgca    300

tatagctgtc gtcactggac agtgatactc atccgtaacc aggtagtggg gtctgagtgg    360

caatggcata tgggtgtgtt cgggcacata gaacttgcgg aagccgtggc tctccgcaag    420

cttgactgct gccgcggggg tgatgccgcg gtcgttggtt aaaagcgcaa tcccgtagcc    480

cataccaaga atttagagcg tgttccacct gcgacggcca agcggtcgtg ccgacgattt    540

cggcgtccat cggtggtagg cgagctgaca cgcaggtcgt gccggcgcgg tcgccctaac    600

gtgcgctagc gttgatgatc gaatgcgccg caacgtaagc gctgccaatt tgggcgttta    660

tccaacggtg cgcatgggag cacagcgttg cactgcagca gtggcgccgt gacggcactg    720

gaaataaca                                                           729



<210>  72
<211>  129
<212>  DNA
<213>  Mycobacterium nonchromogenicum

<400>  72
gttcctgttc ggcgggcaac gggggggtcc ttgtcgcgca gtgttgaccc accgactcgg     60
```

```
cccgcaagtg cgctagcgtg gatggtcgaa gcgcgccgca ccgcccacca gcgccctgcc      120

acaagcaca                                                              129



<210>   73
<211>   219
<212>   DNA
<213>   Mycobacterium scrofulaceum

<400>   73
gttctacctc cggtgagcaa gctgccgccg cggcggcacg gatcggcgtc caagccggtc       60

gcgacggcac gcccgtcccg aagtgcgcta gcgtggttga tcgatcgcgt cgcaacgcaa      120

ccgccgggca cggcattcgt ggaacggcgc gcccgcacgc acagcgccgc gacgcaactg      180

tggcgcccgc aaaggcactt cacggcactg gaagcaaca                             219



<210>   74
<211>   116
<212>   DNA
<213>   Mycobacterium triplex

<400>   74
gttctacctt ggtcggcaag cggcgcggga acggccccgg caccggctcc ccgacgtgcg       60

ctagcgtggt tgttcgaatc gcgtcgcaac gcaagcgcgg cgagcctgga aaaaca          116



<210>   75
<211>   568
<212>   DNA
<213>   Mycobacterium paratuberculosis

<400>   75
gatctcagac agtggcaggt ggcggctccg aagctggcgt cagctattgg tgtaccgaat       60

gttgttgtca ccgagccggt cccaggtgtg ttcgagttgc agctgagaat tgtcgatccg      120

cttagttcgc cgcttgaatg gtcgtctgtg ccagccgccc actcgtggtc tctgagtttg      180

ggtatcgatg aaatgggcgt ctaccagtcg ctcccgttgg cgaacgtatc gggcgttgta      240

gtgggaggcg taccagggtc ggggaaaacc gcgtggctga cgagtgctct ggggtcgttc      300

ggtgcgtcag cggcggtcca gttcgctgtc atcgacggga agggtggtca ggacttggaa      360

tgcctgcgtg ctcgtagctg ccgattcatg aatgacgatc tggagctgcc tgagattgca      420

gcgattctga atgacgcgac cggtctagtc cgtgatcgaa ttagacaggg caacaacata      480
```

ttcggatcgt ccaactttttg ggatcgcggc ccgacgccgc aggttccgct ggtgttcgtg   540

gtgattgacg gctatcgggg ccgagatc   568

<210>   76
<211>   715
<212>   DNA
<213>   Pseudomonas aeruginosa

<400>   76
gcccgtcaca ccatgggagt gggtttttacc agaagtggct agtctaaccg caaggaggac   60

ggtcaccacg gtaggattca tgactggggt gaagtcgtaa caaggtagcc gtatcggaag   120

gtgcggctgg atcacctcct ttccagagct tctcgcacaa gttgagcgct cacgcttatc   180

ggctgtaaat taaagacaga ctcaggggtc tgtagctcag tcggttagag caccgtcttg   240

ataaggcggg ggtcgttggt tcgaatccaa ccagacccac cattgtctgt cggtaacaca   300

cctgaggcaa atctgtacat gggggcatag ctcagctggg agagcacctg ctttgcaagc   360

aggggtcgtc ggttcgatcc cgtctgcctc caccaatcac caacgctaag ggcttggttc   420

agacactgaa ccgagaattt tgcattggcg attgagccag tcagaggata tcaacagata   480

tcggctgtcg ttctttaaca atctggaaga agtaagtaat ttggatagcg gaagcgtctt   540

gagatggacg tggaaactat ccgggttgtg attgtatcga tgtatctcaa gatgattcga   600

actctaagtt tgactcaatt ggaatacggc acaacgcgag aactcaacct gtaacgagac   660

agactcgtta tagggtcaag cgaacaagtg catgtggtgg atgccttggc rrtca   715

<210>   77
<211>   653
<212>   DNA
<213>   Burkholderia cepacia

<400>   77
gcccgtcaca ccatgggagt gggttgctcc agaagtagct agtctaaccg caaggggggac   60

ggttaccacg gagtgattca tgactggggt gaagtcgtaa caaggtagcc gtaggggaac   120

ctgcggctgg atcacctcct taatcgaaga tctcagcttc ttcataagct cccacacgaa   180

ttgcttgatt cactggttag acgattgggt ctgtagctca gttggttaga gcgcacccct   240

gataaggtga ggtcggcagt tcgaatctgc ccagacccac caattgttgg tgtgctgcgt   300

gatccgatac gggccatagc tcagctggga gagcgcctgc tttgcacgca ggaggtcagg   360

agttcgatcc tccttggctc caccatctaa aacaatcgtc gaaagctcag aaatgaatgt   420

```
tcgtgaatga acattgattt ctggtctttg caccagaact gttctttaaa aattcgggta    480

tgtgatagaa gtaagactga atgatctctt tcactggtga tcattcaagt caaggtaaaa    540

tttgcgagtt caagcgcgaa ttttcggcga atgtcgtctt cacagtataa ccagattgct    600

tggggttata tggtcaagtg aagaagcgca tacggtggat gccttggcrr tca           653


<210>   78
<211>   600
<212>   DNA
<213>   Pseudomonas putida

<400>   78
gggttccccg aagtagctag tctaaccttc gggaggacgg ttaccacggt gtgattcatg    60

actggggtga agtcgtaaca aggtagccgt aggggaacct gcggctggat cacctcctta    120

atcgacgaca tcagcctgct gatgagctcc cacacgaatt gcttgattca ttgtcgaaga    180

cgatcaagac cctatatagg tctgtagctc agttggttag agcgcacccc tgataagggt    240

gaggtcggca gttcaaatct gcccagacct accaatatgc ggggccatag ctcagctggg    300

agagcgcctg ccttgcacgc aggaggtcag cggttcgatc ccgcttggct ccaccactcg    360

ctttacttga tcagaactta gaaatgaaca ttcgttgatg aatgttgatt tctgactttt    420

gtcagatcgt tctttaaaaa ttcggatatg tgatagaaat agactgaaca ccagtttcac    480

tgctggtgga tcaggctaag gtaaaatttg tgagttctgc tcgaaagagc aacgtgcgaa    540

ttttcggcga atgtcgtctt cacagtataa ccagattgct tggggttata tggtcaagtg    600


<210>   79
<211>   446
<212>   DNA
<213>   Pseudomonas putida

<400>   79
ggttcaccag aagtagctag tctaaccttc gggaggacgg ttaccacggt gtgattcatg    60

actggggtga agtcgtaaca aggtagccgt aggggaacct gcggctggat cacctcctta    120

atcgacgaca tcagcctgct gatgagctcc cacacgaatt gcttgattct ttgtaaaaga    180

cgatcaaggc cttgtgcagg cctcgcgttg ttcctgatca gaacttggaa atgagcattc    240

gcttcgaatg ttgatttctg cttttgtca gatcgttctt taaaaattcg gatatgtgat    300

agaaatagac tgaacaccag tttcactgct ggtggatcag gctaaggtaa aatttgtgag    360
```

```
ttctgctcga aagagcaacg tgcgaatttt cggcgaatgt cgtcttcaca gtataaccag        420

attgcttggg gttatatggt caagtg                                             446


<210>   80
<211>   660
<212>   DNA
<213>   Pseudomonas aeruginosa

<400>   80
gcccgtcaca ccatgggagt gggttgctcc agaagtagct agtctaaccg caaggggggac        60

ggttaccacg gagtgattca tgactggggt gaagtcgtaa caaggtagcc gtaggggaac        120

ctgcggctgg atcacctcct taatcgaaga tctcagcttc ttcataagct cccacacgaa        180

ttgcttgatt cactggttag acgattgggt ctgtagctca gttggttaga gcgcacccct        240

gataaggtga ggtcggcagt tcgaatctgc ccagacccac caattgttgg tgtgctgcgt        300

gatccgatac gggccatagc tcagctggga gagcgcctgc tttgcacgca ggaggtcagg        360

agttcgatcc tccttggctc caccatctaa aacaatcgtc gaaagctcag aaatgaatgt        420

tcgtgaatga acattgattt ctggtctttg caccagaact gttctttaaa aattcgggta        480

tgtgatagaa gtaagactga atgatctctt tcactggtga tcattcaagt caaggtaaaa        540

tttgcgagtt caagcgcgaa ttttcggcga atgtcgtctt cacagtataa ccagattgct        600

tggggttata tggtcaagtg aagaagcgca tacggtggat gccttggcrr tcasaggcga        660


<210>   81
<211>   722
<212>   DNA
<213>   Burkholderia cepacia

<400>   81
gcccgtcaca ccatgggagt gggtttttacc agaagtggct agtctaaccg caaggaggac        60

ggtcaccacg gtaggattca tgactggggt gaagtcgtaa caaggtagcc gtatcggaag        120

gtgcggctgg atcacctcct ttccagagct tctcgcacaa gttgagcgct cacgcttatc        180

ggctgtaaat taaagacaga ctcaggggtc tgtagctcag tcggttagag caccgtcttg        240

ataaggcggg ggtcgttggt tcgaatccaa ccagacccac cattgtctgg cggtaacaca        300

cctgaggcaa atctgtacat gggggcatag ctcagctggg agagcacctg ctttgcaagc        360

aggggtcgtc ggttcgatcc cgtctgcctc caccaatcac caacgctaag ggcttggttc        420

agacactgaa ccgagaattt tgcattggcg attgagccag tcagaggata tcaacagata        480
```

```
tcggctgtcg ttctttaaca atctggaaga agtaagtaat ttggatagcg gaagcgtctt      540

gagatggacg tggaaactat ccgggttgtg attgtatcga tgtatctcaa gatgattcga      600

actctaagtt tgactcaatt ggaatacggc acaacgcgag aactcaacct gtaacgagac      660

agactcgtta tagggtcaag cgaacaagtg catgtggtgg atgccttggc rrtcasaggc      720

ga                                                                     722
```

```
<210>   82
<211>   725
<212>   DNA
<213>   Stenotrophomonas maltophilia

<400>   82
gcccgtcaca ccatgggagt ttgttgcacc agaagcaggt agcttaacct tcgggagggc       60

gcttgcacgg tgctgcgatg actggggtga agtcgtaaca aggtagccgt atcggaaggt      120

gcggctggat cacctccttt tgagcaaaga cagcatcgtc ctgtcgggcg tcttcacaaa      180

gtacctgcat tcagagaatc acaacggcca ggccgatgtg agagtccctt ttgggcctta      240

gctcagctgg gagagcacct gctttgcaag caggggtcgt cggttcgatc ccgacagctc      300

caccatgttc gagctgtata ccgaagtccc tttcgaagag cccgcacatc catgtgctac      360

tttttgaaaa agcctttcgg gtctgtagct caggtggtta gacgcaccct gataagggtg      420

aggtcggtag ttcgagtcta cccagacccca ccattctctg aatgacgcat acattcgatc     480

tttatacgca tcagcactgt ggctggtacg tgttctttta aaacttgtga cgtagcgagc      540

gtttgagatg ttctatcaga cgtgtcgtga ggctaaggcg agagacgcaa gtctctttat      600

tgattgagtc gttatattcg tatccgggct ttgtaccccc gggtcgtgtg taacccaagg      660

caacttgcgg ttatatggtc aagcgaataa gcgcacacgg tggatgcctt ggcrrtcasa      720

ggcga                                                                  725
```

```
<210>   83
<211>   18
<212>   DNA
<213>   Pseudomonas sp.

<400>   83
acgtcacacc atgggagt                                                     18
```

<210> 84
<211> 23
<212> DNA
<213> Burkholderia cepacia

<400> 84
ccctgagtct gtctttaatt tac   23

<210> 85
<211> 20
<212> DNA
<213> Pseudomonas aeruginosa

<400> 85
ctttcgacga ttgtttttagt   20

<210> 86
<211> 21
<212> DNA
<213> Stenotrophomonas maltophilia

<400> 86
tcaataaaag agacttgcgt c   21

<210> 87
<211> 18
<212> DNA
<213> Pseudomonas sp.

<400> 87
gattgccaag gcatccac   18

<210> 88
<211> 18
<212> DNA
<213> Pseudomonas sp.

<400> 88
gaggaaggtg gggatgac   18

<210> 89
<211> 18
<212> DNA
<213> Pseudomonas sp.

<400> 89
tgggaacgta ttcaccgt   18